

## **REMARKS/ARGUMENTS**

The Examiner has rejected claims 1-10 pending in the application. In addition, the Examiner has objected to the specification because page 7 of the specification is missing. This response amends claims 1, 4, 5, and 7-10, and presents new claims 11-12 for consideration. After entry of the foregoing amendments, claims 1-12 (1 independent claim, 12 total claims) remain pending in the application. Reconsideration is respectfully requested.

In response to the Examiner's objection to the specification, Applicants have included missing page 7 by attaching it hereto as an appendix.

The Examiner has also objected to claims 4, 5 and 7-10 under 37 C.F.R. §1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. In particular, the Examiner states that claims 4, 5 and 10 are objected to as they contain no further structural limitations and instead contain only functional language concerning the claimed invention. In addition, the Examiner states that claims 7-9 are objected to as being drawn only to an intended use of the present invention. In response to the Examiner's objections, Applicants have amended claims 4, 5 and 7-10 to place the claims in proper dependent form.

Claims 1-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nelson et al., U.S. Patent No. 6,569,383 (hereinafter "Nelson") in view of Wagner et al., U.S. Patent No. 6,329,209B1 (hereinafter "Wagner"). In particular, the Examiner states that with respect to claim 1, Nelson teaches a high throughput integrated system for qualitative and quantitative biomolecules analysis which includes a robotic platform, taught in reference as a bioactive chip fitted with multiple, spatially arrayed affinity capture mechanisms located at separation sites, a mass spectrometer target having a spatial array corresponding to the same spatial array as the affinity captures at the separation site, and a mass spectrometer capable of accepting the spatially arrayed target. In support of his contention, the Examiner cites to Nelson as follows:

- i. The Examiner states that the robotic platform is taught by the bioactive chip present in the Nelson reference. The Examiner states that the bioactive chip in Nelson is fitted with multiple spatially arrayed affinity capture mechanisms located at separation sites (claim 1) where the separation sites can "accomplish isolation, or separation, of the target analyte, particularly by

methods such as affinity capture” and that this can be “accomplished using multiple separation sites SS either in series or in parallel” (column 12, lines 26-33).

ii. The Examiner states that a mass spectrometer target having a spatial array corresponding to the spatial array of the affinity capture at the separation site is taught by Nelson where Nelson states “depending upon the size and nature of the analyte captured by the Bioactive Chip, matrix material may optionally be employed” (columns 15-16). The Examiner also cites to Nelson for teaching that “with regard to MALDI, laser energy is impinged upon the surface of the Bioactive Chip, resulting in the desorption/ionization of the capture analyte” (column 16, lines 60-63) and that “the ionized analyte is then detected by the mass spectrometer” (column 16, lines 63-64).

iii. The Examiner states that the reference teaches a mass spectrometer capable of accepting the spatially arrayed target by stating that “the laser is directed to the surface of the Bioactive Chip having the analyte captured thereon” (column 16, lines 64-65) and “when multiple active sites, SS-PS-MS, are employed on a single Bioactive Chip, the laser may be directed to a single active site at a time . . . in this manner, the captured analyte from the single site may be analyzed by mass spectrometry” (column 17, lines 4-10).

Applicants respectfully traverse this rejection.

Nelson generally discloses a bioactive probe or chip that allows for the isolation of analytes, such as biomolecules, followed by modification or bioreaction on the analytes. The analytes are then further characterized and identified using mass spectrometry. The Examiner contends that the bioactive chip containing separation sites teaches Applicants’ robotic platform fitted with multiple, spatially arrayed affinity microcolumns and that optionally employing matrix material and impinging laser energy on the surface of the bioactive chip teach Applicants’ claimed mass spectrometer target having a spatial array corresponding to the same spatial array as the affinity microcolumns. Accordingly, the Examiner has identified the bioactive chip disclosed in Nelson as constituting both the robotic platform and the mass spectrometer target claimed by Applicants. However, Applicants’ amended claim 1 defines the mass spectrometer target as being different and separate from spatially arrayed affinity microcolumns fitted on the

robotic platform. Accordingly, Nelson fails to disclose both a robotic platform fitted with multiple, spatially arrayed affinity microcolumns and a mass spectrometer target, separate from the affinity microcolumns, having a spatial array corresponding to the same spatial array as the affinity microcolumns.

The Examiner also contends that the mass spectrometer capable of accepting the spatially arrayed target is taught by Nelson where Nelson states the following: "When multiple active sites SS-PS-MS, are employed on a single Bioactive Chip, the laser may be directed to a single active site at a time . . . in this manner, the captured analyte from the single site may be analyzed by mass spectrometry." However, in that Applicants' claimed invention clearly recites a mass spectrometer target that is separate from a robotic platform containing spatially arrayed affinity microcolumns, the bioactive chip of Nelson cannot be the mass spectrometer target claimed by Applicants. Accordingly, the bioactive chip in Nelson cannot be the spatially arrayed target that is accepted by a mass spectrometer as claimed in Applicants' claims.

Although the Examiner concedes that Nelson fails to teach Applicants' claims 1-10 where the affinity capture component is in the form of an affinity microcolumn, the Examiner argues that Wagner teaches an array of protein-capture agents and methods of use which include the capture of proteins by passing them over an affinity surface, such as a chromatography column. Therefore, the Examiner contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the specific type of arrayed microcolumns taught by Wagner in view of the array-based affinity capture mechanism taught by Nelson. Applicants respectfully disagree.

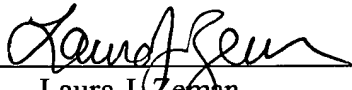
Although Wagner discloses the step of biasing a library of protein-capture agents by passing the library over an affinity surface such as a chromatography column, Wagner fails to disclose a robotic platform fitted with a spatial array of microcolumns, a mass spectrometer target having a spatial array corresponding to the same spatial array as the microcolumns, and a mass spectrometer capable of accepting the spatially arrayed target. Accordingly, neither Nelson or Wagner, either alone or in combination, disclose each of the elements of Applicants' claimed invention. In particular, neither Nelson or Wagner discloses a robotic platform fitted with a spatial array of affinity columns that is separate and distinct from a mass spectrometer target having a spatial array corresponding to the same spatial array as the affinity microcolumns. Therefore, in that neither Nelson or Wagner, either alone or in combination, disclose each of the

elements of Applicants' claimed invention, Applicants' claimed invention could not be obvious in light of Nelson and Wagner.

Moreover, in that each of dependent claims 2-12 varyingly depend from independent claim 1, Applicants' dependent claims 2-12 would also not be obvious to one of ordinary skill in the art in light of Nelson and Wagner.

In view of the foregoing, Applicants respectfully submit that all of the pending claims fully comply with 35 U.S.C. §112 and are allowable over the prior art of record. Reconsideration of the application and allowance of all pending claims is earnestly solicited. Should the Examiner wish to discuss any of the above in greater detail or deem that further amendments should be made to improve the form of the claims, then the Examiner is invited to telephone the undersigned at the Examiner's convenience.

Respectfully submitted,

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